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Applicant	: GIACOMETTI
Serial No	: 10/552,360
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Art Unit	: 1791
Examiner	: Michael A. Tolin
Dated	: February 2, 2011

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

APPEAL BRIEF

(1) REAL PARTY IN INTEREST.

The real party in interest is Pantex Sud. S.R.L.

(2) RELATED APPEALS AND INTERFERENCES.

There are believed to be no related appeals and interferences.

(3) STATUS OF CLAIMS.

Claims 1, 2, 4-14, 19-24 and 35-38 are on appeal.

Claims 3, 15-18 and 25-34 have been canceled.

Claims 1, 5, 19, 23 and 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable

over Giacometti (US 5,709,829) in view of either one of Schulz et al. (US 5,913,997) or Cruise et al. (US 5,874,159).

Claims 2, 4 and 38 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Majors et al. (US 5,704,101).

Claims 6 and 10-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Dettmer et al. (WO 99/25911 referencing US 6,395,211 as an English-language equivalent).

Claims 7-9, 20-22, 35 and 36 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Dettmer et al., and further in view of Pike (US 5,382,400).

Claim 37 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Dettmer et al. and Pike, and further in view of Majors et al.

(4) STATUS OF AMENDMENTS.

An After Final Amendment has not been filed in response to the final Office Action of September 3, 2010.

(5) SUMMARY OF THE CLAIMED SUBJECT MATTER

CLAIM 1:

Claim 1 is directed to a method to produce a perforated web material N, V (page 1, lines 4-8; Figure1, 2, 3 and 5-7). Appellant has discovered that several advantages are provided by preheating the web material prior to the web material entering the nip defined by the first roller 7 and the second roller 9. Perforation of the web material in the nip, between the two rollers, requires a certain stay time between the rollers 7, 9 and the supply of a certain amount of energy. Perforation of the web material N takes place through pressure and heat supplied to the web material and through the mechanical effect caused by a difference in the speeds of the rollers 7, 9. Appellant has discovered the problem that increasing production rates of the web material is limited by the need to keep the web material N engaged between the rollers 7, 9 for the time required to guarantee perforation over the entire width of the web and along its entire longitudinal extension. As a result of the higher feed speeds of the web material, the stay time of the material in contact with the rollers 7, 9 is significantly reduced. Appellant has solved this problem by preheating a web material N prior to moving the web into a nip defined by a first roller 7 and a second roller 9 wherein the rollers 7, 9 have different speeds (Figures 1, 3, 6 and 7). By preheating the web material before it is fed to the nip, it is possible to take the temperature of the material to a value that reduces the stay time required by the material in contact with the rollers 7, 9, which allows correct and accurate perforation of the web while feeding the web material at a high speed. The preheating of the web N allows more development of the perforation of the material.

The method comprises providing the first roller 7 and the second roller 9 wherein the first roller 7 and the second roller 9 define the nip 11 (page 8, lines 18-24; Figures 1, 3, 6 and 7). The web material N, V is preheated to form a preheated web material (page 8, lines 8-17; Figures 1,3, 6 and 7). The web material N, V is preheated prior to contacting the first roller 7 and the second roller 9 (page 8, lines 8-24; Figures 1, 3, 6 and 7). The preheated web material has a preheated temperature that is greater than an ambient temperature (page 8, lines 8-15). The preheated web material is fed to an entrance of the nip without contacting the second roller 9 (Figures 1, 3, 6 and 7). The preheated web material is fed through the nip 11 (page 8, lines 18-24; Figures 1, 3, 6 and 7). The first roller 7 and the second roller 9 rotate in opposite directions (page 8, lines 18-24; Figures 1, 3, 6 and 7) and the first roller 7 is pressed against the second roller 9 during feeding of the preheated web material (page 8, line 25 through page 9, line 4; page 9, line 29 through page 10, line 6). The first roller 7 is provided with protuberances 7P for perforation of the preheated web material N, V (page 8, lines 25-26; Figures 1, 3, 6 and 7). The protuberances 7 P contact a surface of the second roller 9 without penetrating the surface of the second roller 9 (page 7, lines 3-8; Figures 1, 3, 6 and 7). The first roller 7 and the second roller 9 rotate with different peripheral speeds with respect to each other (page 8, line 25 through page 9, line 4).

CLAIM 2:

At least one of the first roller 7 and the second roller 9 of claim 1 may be heated (page 9, lines 5-8). This is in addition to the claimed preheating of the web material. Each of the

protuberances 7P may have a height between 0.2 and 3 mm. (page 9, lines 30-32).

CLAIM 4:

The first roller 7 of claim 1 may rotate at a higher peripheral speed than the second roller 9 (page 4, lines 19-24). Each of the protuberances 7P may have a height between 0.5 and 1.2 mm. (page 11, lines 30-32).

CLAIM 5:

The web material N of claim 1 may be a nonwoven fabric (page 8, lines 3-5).

CLAIM 6:

The web material N of claim 5 may comprise at least a web of fibers V1, V2 (page 13, lines 7-9; Figures 6-9). The web of fibers V1, V2 may be bonded to form a nonwoven fabric (page 13, lines 9-11; Figures 6-9). The step of preheating the web material may include preheating the nonwoven fabric (page 13, lines 7-11; Figures 6-9). The nonwoven fabric may be fed into the nip 11 (page 13, lines 12-17; Figures 6-9).

CLAIM 7:

The web N of claim 6 may be produced and bonded in series upstream of the nip 11 (page 13, lines 18-21; Figure 8).

CLAIM 8:

The web material N of claim 6 may include at least a web of unbonded fibers V1, V2 (page 13, lines 7-21; Figures 6-9). The step of preheating the web material N may comprise feeding the web of unbonded fibers V1, V2 through at least one heating and bonding station 3A, 3B, 3 to bond the fibers and form a nonwoven fabric V, N (page 13, lines 7-29; Figures 6-9). The nonwoven fabric V, N may be fed into the nip 11 (page 13, lines 12-17; Figures 6-9).

CLAIM 9:

The heating and bonding of claim 8 may be performed using an air-through system (page 8, lines 8-10).

CLAIM 10:

The nonwoven fabric of claim 6 may be fed into the nip 11 with an input speed equal to or lower than the peripheral speed of the first roller 7 (page 14, lines 1-12).

CLAIM 11:

The second roller 9 of claim 12 may be rotated at a peripheral speed that is lower than or equal to the peripheral speed of the first roller 7 (page 14, lines 1-11).

CLAIM 12:

The feed speed of the nonwoven fabric into the nip 11 of claim 10 may be between

90% and 100% of the peripheral speed of the first roller 7 (page 14, lines 1-12).

CLAIM 13:

The feed speed of the nonwoven fabric into the nip 11 of claim 12 may be between 90% and 110% of the peripheral speed of the second roller 9 (page 14, lines 1-12).

CLAIM 14:

The peripheral speed of the second roller 9 of claim 12 may be between 50% and 100% of the peripheral speed of the first roller 7 (page 14, lines 1-13).

CLAIM 19:

According to the method of claim 5, two or more webs of fibers V1, V2 may be coupled and joined together (page 13, lines 7-26; Figures 6-9).

CLAIM 20:

The web material N, V of claim 19 may comprise at least a first web of unbonded fibers V1 and a second web of unbonded fibers V2 (page 13, lines 7-26; Figures 6-9). The first web of unbonded fibers V1 and the second web V2 of unbonded fibers may be joined in a heating station 3A, 3B, 3 (page 13, liens 7-26; Figures 6-9).

CLAIM 21:

The web material N, V of claim 19 may comprise at least a first web of unbonded fibers V1 and a second web of unbonded fibers V2 (page 13, lines 7-26; Figures 6-9). The first web of unbonded fibers V1 and the second web of unbonded fibers V2 may be fed to one or more heating and bonding stations 3A, 3B for preheating and separately bonding the fibers of the first web and of the second web to form two nonwoven fabrics (page 13, lines 12-17; Figure 7). The two preheated nonwoven fabrics may be fed into the nip 11 such that the two preheated nonwoven fabrics are perforated and joined together in the nip 11 (page 13, lines 12-17; Figure 7).

CLAIM 22:

The web material N of claim 5 may comprise bicomponent fibers (page 5, lines 21-25).

CLAIM 23:

According to the method of claim 5, a plastic film may be combined with the nonwoven fabric or with a web of unconsolidated fibers (page 13, lines 22-28).

CLAIM 24:

The web material N of claim 21 may comprise at least a plastic film (page 13, lines 22-28).

CLAIM 35:

Claim 35 is directed to a method that is similar to claim 1, but provides for a first material web V1 and a second material web V2 that are preheated prior to contacting a first roller 7 and a second roller 9 (Figures 6-9). At least one of the first roller 7 and second roller 9 is heated. The preheating of the first material web V1 and the second material web V2 advantageously reduces the quantity of heat to be supplied to the first material web V1 and the second material web V2 by at least one of the first roller 7 and the second roller 9. This advantageously allows the temperature of at least one of the first roller 7 and the second roller 9 to be kept lower and the time for which the first material web V1 and the second material web V2 remains in contact with at least one of the first roller 7 and the second roller 9 is reduced. This drastically increases the production rate of the perforated web material N, V when compared to conventional systems in which the web material comes into contact with rollers when the web material is still at ambient temperature. Further, the preheating of the first material web V1 and the second material web V2 allows for a more reliable perforation of the first material web V1 and the second material web V2 since the preheating reduces the time required for the material webs V1 and V2 to be in contact with rollers 7, 9.

Claim 35 is directed to a method to produce a perforated web material (page 1, lines 4-8). The method comprises providing the first web material V1 and the second web material V2 (page 13, lines 7-28; Figures 6-9) and the first roller 7 and the second roller 9 (page 8, lines 18-19; Figures 1, 3 and 6-9). The first roller 7 and the second roller 9 define a nip 11 (page 8, lines 19-24; Figures 1, 3 and 6-9). The first roller 7 is rotated at a first speed (page 8, line 19

through page 9, line 4). The second roller 9 is rotated at a second speed (page 8, line 19 through page 9, line 4). The first speed is different from the second speed (page 8, line 19 through page 9, line 4). The preheating of the first web material V1 and the second web material V2 forms a preheated first web material and a preheated second web material (page 13, lines 7-28; Figures 6-9). The first preheated web material has an at least partially melted first web material portion and the second preheated web material has an at least partially melted second web material portion (page 8, lines 8-13). As discussed above, the first web material V1 and the second web material V2 is preheated prior to contacting the first roller 7 and the second roller 9 (page 8, lines 18-19; Figures 6-9). The preheated first web material and the second web material has a preheated temperature (page 8, lines 8-15). The preheated temperature is greater than an ambient temperature (page 8, lines 8-15). The preheated web material V1, V2 is fed to a position adjacent to the nip 11 without the preheated web material V1, V2 contacting the second roller 9 (Figures 6-9).

The preheated first web material and the preheated second web material are fed through the nip 11 with the first roller 7 rotating at the first speed and the second roller 9 rotating at the second speed (page 8, lines 18-24; Figures 1, 3, 6 and 7). The first roller 7 is pressed against the second roller 9 during the feeding of the preheated first web material and the preheated second web material (page 8, line 25 through page 9, line 4; page 9, line 29 through page 10, line 6; Figures 6-9). The first roller 7 rotates in a first roller direction and the second roller 9 rotates in a direction opposite the first roller direction (page 8, lines 18-24; Figures 1, 3, 6 and 7). The first roller 7 comprises a plurality of projections 7P (page 8, lines 25-26; Figures 1, 3

and 6-9). The at least one of the first roller 7 and second roller 9 is heated (page 9, lines 6-8). The preheated first web material and the second web material are perforated via the first roller 7 and the second roller 9 to form the perforated web material (page 8, line 25 through page 9, line 4; page 13, lines 12-17; Figures 6-9). The projections 7P do not penetrate the second roller 9 during the step of perforating the preheated first web material (page 7, lines 3-8; Figures 1, 3, 6 and 7).

CLAIM 36:

Claim 36 is directed to a method to produce a perforated web material that is similar to claim 1, but provides that unbonded fibers pass through at least one heating and bonding station 3a, 3b, 3 to form a preheated nonwoven fabric (Figures 1, 3 and 6-9). The preheated nonwoven fabric advantageously allows more time to obtain perforation of the web material. This increased time ensures that perforation is obtained even in the most critical areas of the web material, typically along the edges. Although the preheating material of the web material increases energy consumption, the power compensation required to preheat the web material is compensated by the increased productivity of the system and by the reduction of thermal energy supplied to the rollers 7, 9.

The method comprises providing the at least one heating and bonding station 3a, 3b, 3 (page 8, lines 8-10; Figures 1, 3 and 6-9). At least a web of unbonded fibers is produced (page 8, lines 7-8; page 13, lines 7-11; Figures 1, 3 and 6-9). The web of unbonded fibers are fed through the at least one heating and bonding station 3a, 3b, 3 such that the fibers are

bonded to form a preheated nonwoven fabric N, V (page 8, lines 2-17; page 13, 7-24; Figures 1, 3 and 6-9). The preheated nonwoven fabric N, V is at least partially softened via the at least one heating and bonding station 3a, 3b, 3 (page 8, lines 8-13). The preheated nonwoven fabric N, V has a preheated temperature (page 8, lines 8-15). The preheated temperature is greater than an ambient temperature (page 8, lines 8-15). The first roller 7 and the second roller 9 define a nip 11 (page 8, lines 19-24; Figures 1, 3 and 6-9). The first roller 7 and the second roller 9 are located downstream of the at least one heating and bonding station 3a, 3b, 3 with respect to a travel direction of the preheated nonwoven fabric N, V (Figures 1, 3 and 6-9).

The first roller 7 rotates at a first roller speed (page 8, line 19 through page 9, line 4). The second roller 9 rotates at a second roller speed (page 8, line 19 through page 9, line 4). The first roller speed is not equal to the second roller speed (page 8, line 19 through page 9, line 4). The preheated nonwoven fabric N, V is delivered to an area opposite the nip 11 without the preheated nonwoven fabric N, V contacting the second roller 9 (Figures 1, 3 and 6-9). The preheated nonwoven fabric N, V is fed into the nip 11 with the first roller 7 rotating at the first roller speed and with the second roller 9 rotating at the second roller speed (page 8, lines 18-24; Figures 1, 3, 6 and 7). The preheated nonwoven fabric N, V is preheated prior to contacting the first roller 7 and the second roller 9 (Figures 1, 3 and 6-9). The first roller 7 and the second roller 9 are located at a spaced location from the heating and bonding station 3a, 3b, 3 (Figures 1, 3 and 6-9). The first roller 7 is pressed against the second roller 9 during feeding of the nonwoven fabric N, V to form a perforated nonwoven fabric (page 8, line 25 through page 9, line 4; page 13, lines 12-17; Figures 6-9). The first roller 7 rotates in a first

roller direction and the second roller 9 rotates in a direction opposite the first roller direction (page 8, lines 18-24; Figures 1, 3, 6 and 7). The first roller 7 comprises one or more projections 7P (page 8, lines 25-26; Figures 1, 3 and 6-9). The one or more projections 7P do not penetrate a surface of the second roller 9 during pressing the first roller 7 against the second roller 9 (page 7, lines 3-8; Figures 1, 3, 6 and 7).

CLAIM 37:

The first roller 7 and the second roller 9 of claim 35 may apply a pressure in a range of 40 and 220 kg/cm (page 14, lines 14-17). Each of the protuberances 7P may have one of a height between 0.2 and 3 mm. and a height between 0.5 and 1.2 mm. (page 11, lines 30-32).

CLAIM 38:

Claim 38 is directed to a method to produce a perforated web material (page 1, lines 4-8; Figure1, 2, 3 and 5-7) that is similar to claim 1, but provides that the web material is preheated prior to contacting a first roller 7 and a second roller 9 in combination with protuberances 7P that have a height of one of between 0.2 and 3 mm. and between 0.5 and 1.2 mm. The preheating of the web material advantageously reduces the bending stresses induced on the protuberances 7P. The lower bending stresses allow the protuberances to have an increased height.

The method comprises providing the first roller 7 and the second roller 9 wherein the first roller 7 and the second roller 9 define a nip 11 (page 8, lines 18-24; Figures 1, 3, 6 and 7).

The web material N, V is preheated to form a preheated web material (page 8, lines 2-17; page 13, 7-24; Figures 1, 3 and 6-9). The web material N, V is preheated prior to contacting the first roller 7 and the second roller 9 (page 8, lines 8-24; Figures 1, 3, 6 and 7). The preheated web material has a preheated temperature (page 8, lines 8-15). The preheated temperature is greater than an ambient temperature (page 8, lines 8-15). The preheated web material is fed through the nip 11 (page 8, lines 18-24; Figures 1, 3, 6 and 7). The first roller 7 and the second roller 9 rotate in opposite directions (page 8, lines 18-24; Figures 1, 3, 6 and 7) and the first roller 7 is pressed against the second roller 9 during the feeding of the preheated web material (page 8, line 25 through page 9, line 4; page 9, line 29 through page 10, line 6). The first roller 7 is provided with protuberances 7P for perforation (page 8, lines 25-26; Figures 1, 3 and 6-9). The protuberances 7P contact a surface of the second roller 9 without penetrating the surface of the second roller 9 (page 7, lines 3-8; Figures 1, 3, 6 and 7). The protuberances 7P have one of the height between 0.2 and 3 mm. and the height between 0.5 and 1.2 mm. (page 11, lines 30-32). The first roller 7 and the second roller 9 rotate with a different peripheral speed with respect to each other (page 8, line 25 through page 9, line 4).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL.

Whether claims 1, 5, 19, 23 and 24 are rejectable under 35 U.S.C. 103(a) as being unpatentable over Giacometti (US 5,709,829) in view of either one of Schulz et al. (US 5,913,997) or Cruise et al. (US 5,874,159).

Whether claims 2, 4 and 38 are rejectable under 35 U.S.C. 103(a) as being unpatentable

over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Majors et al. (US 5,704,101).

Whether claims 6 and 10-14 are rejectable under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Dettmer et al. (WO 99/25911 reference US 6,395,211 as an English-language equivalent).

Whether claims 7-9, 20-22, 35 and 36 are rejectable under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Dettmer et al., and further in view of Pike (US 5,382,400).

Whether claim 37 is rejectable under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Dettmer et al. and Pike, and further in view of Majors et al.

(7) ARGUMENT.

ISSUE: Whether claims 1, 5, 19, 23 and 24 are rejectable under 35 U.S.C. 103(a) as being unpatentable over Giacometti (US 5,709,829) in view of either one of Schulz et al. (US 5,913,997) or Cruise et al. (US 5,874,159).

CLAIM 1

Claim 1 is directed to a method to produce a perforated web material. The method includes preheating the web material prior to contact with the first roller and the second roller.

The preheated web material is fed to the entrance of the nip, which is defined by the first roller and the second roller, without contacting the second roller. Preheating the web material prior to contacting one or more rollers advantageously reduces the time required by the web material to be in contact with the perforation roller so that correct and accurate perforation of all of the web material is obtained. This advantageously allows feeding of the web material at a high speed, which significantly reduces the time it takes to perforate the web material. This drastically reduces the overall manufacturing costs involved with producing the perforated web material since it takes less time to perforate the web material so that more perforated web material can be produced at a faster rate. Further, the heating of the web material prior to contact with one or more rollers allows the web material to be more easily perforated. This significantly reduces the mechanical stress on the web material. As the web material reaches the nip preheated, the pressure and percentage of slippage between the rollers is drastically reduced. The reduction in pressure reduces the compression stresses and bending stresses to which the tips or protuberances provided on the roller are subjected. This advantageously allows the protuberances to be produced of a greater height, which allows the thickness of the finished product to be increased. The prior art as a whole fails to disclose such features and such increased manufacturing efficiency advantages.

As noted in the final rejection, Giacometti fails to teach or suggest the combination of a web that is preheated prior to contacting two rollers for perforating the preheated web as claimed. Giacometti merely discloses a method for perforating a web wherein a web enters a nip defined by two rollers that rotate at different speeds wherein one of the rollers has

protuberances for producing the holes in the web. Giacometti does not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward the advantages of preheating a web material in a perforating process. Further, Giacometti does not recognize any particular problems associated with perforating a web material. As such, the prior art as a whole does not establish a prima facie case of obviousness as Giacometti does not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward the advantages of perforating a preheated web material as featured in the present invention.

The final rejection relies on the teachings of Schulz et al. and Cruise et al. to suggest that it would be obvious to preheat a web material prior to contacting two rollers that perforate the preheated web material as claimed. However, a person of ordinary skill in the art would not be directed toward the teachings of Schulz et al. and Cruise et al. Schulz et al. and Cruise et al. disclose processes wherein it is essential that the rollers rotate at the same rotational speed. This is in direct conflict with the present invention and the teachings of Giacometti, which discloses that the rollers rotate at different speeds. The different speed of the rollers of the present invention is necessary to provide excellent perforation characteristics. A perforation made with rollers that rotate at different speeds provides a stress on the web that is greater than the stress occurring with the perforation made with rollers that rotate at the same speed. A person of ordinary skill in the art would not be directed toward the teachings of Schulz et al. and Cruise et al. in view of the teachings of Giacometti since Schulz et al. and Cruise et al. do not address the problem of optimizing the quality of a web of material with high stress during perforation.

Even assuming a person of ordinary skill in the art would be directed toward the teachings of Schulz et al. and Cruise et al., Schulz et al. and Cruise et al. do not teach or suggest the combination of preheating a web material prior to the web material contacting a first roller and a second roller as featured in the claimed combination. Schulz et al. and Cruise et al. only disclose heating a web material prior to bonding of web material. The references as a whole fail to provide any suggestion of using the teachings of Schulz et al. and Cruise et al. to separate the heating station from a bonding station and combine it with the device of Giacometti. The references as a whole do not direct a person of ordinary skill in the art toward the benefits of preheating the web material in combination with perforation treatments. Schulz et al. and Cruise et al. are only concerned with heating a web material to bond web material and to bond fabric, but the references as a whole do not provide any teaching or suggestion for the advantages associated with preheating a web prior to perforation. Bonding web material is very different from perforating web material, and the stress on the web is lower in bonding operations. Schulz et al. and Cruise et al. fail to provide any teaching or suggestion for heating a web material prior to perforating the web material as claimed. As such, the rejection fails to establish a prima facie case of obviousness as the prior art as a whole does not teach or suggest each and every feature of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 1 be reversed.

CLAIM 5

The final rejection takes the position that Giacometti discloses a web material that is

a nonwoven fabric. While it may be true that Giacometti discloses a membrane or film that may be formed by a single membrane of nonwoven, Giacometti, Schulz et al. and Cruise et al. do not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward preheating a nonwoven fabric prior to the nonwoven fabric contacting a pair of rollers as featured in the present invention. Giacometti fails to recognize any problems associated with perforating web material and does not direct a person of ordinary skill in the art toward the advantages associated with preheating the web material prior to contacting a pair of rollers as claimed. The references as a whole do not provide any suggestion of using the teachings of Schulz et al. and Cruise et al. to modify the device fo Giacometti. Instead of being concerned with perforating a web material as featured in the present invention and in Giacometti, Schulz et al. and Cruise et al. are directed toward bonding preheated web material. The characteristics and properties in bonding web material are very different from the characteristics and properties of the web material when perforating the web material. As such, the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 5 be reversed.

CLAIM 19

Although it may be true that Giacometti discloses perforating composite materials, the references as a whole do not teach and do not suggest perforating a preheated web material that includes two or more webs of fibers that are coupled and joined together as claimed. The prior

art as a whole does not recognize any particular advantage associated with perforating a preheated web material as featured in the present invention. Schulz et al. and Cruise et al. direct a person of ordinary skill in the art toward preheating a web material in bonding operations. This does not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward preheating a web material prior to perforating a web material as claimed. A person of ordinary skill in the art would not be directed toward the teachings of Schulz et al. and Cruise et al. since the teachings of Schulz et al. and Cruise et al. are in direct conflict with the teachings of Giacometti and the present invention. Giacometti and the claimed combination provide that the rollers rotate at different speeds. This is inconsistent with the teachings of Schulz et al. and Cruise et al. since Schulz et al. and Cruise et al. disclose that it is essential that the rollers rotate at a uniform speed (see abstract of Schulz et al. and Column 3, lines 45-50 of Cruise et al.). As such, the rejection fails to establish a prima facie case of obviousness as a person of ordinary skill in the art would not be directed toward the teachings of Schulz et al. and Cruise et al. Accordingly, it is respectfully requested that the rejection with respect to claim 19 be reversed.

CLAIM 23

The prior art as a whole fails to teach and fails to suggest preheating a web material that includes a plastic film that is combined with a nonwoven fabric or with a web of unconsolidated fibers prior to perforating the web material as claimed. The references as a whole do not provide any suggestion of using the teachings of Schulz et al. and Cruise et al.

to modify the device for perforating a web material as featured in Giacometti. Schulz et al. merely directs a person of ordinary skill in the art toward preheating a web material wherein the preheated web material is bonded. This is a completely different process and a completely different problem than perforating a web material as featured in Giacometti and as featured in the present invention. Cruise et al. only directs a person of ordinary skill in the art toward preheating one or more fabrics that are bonded together. This is a completely different process and a completely different problem than perforating a web material as featured in Giacometti and the present invention. Schulz et al. and Cruise do not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward the advantages associated with preheating a web material in a perforation process. As such, the rejection fails to establish a prima facie case of obviousness since Schulz et al. and Cruise et al. do not provide any teaching or suggestion for preheating a web material prior to perforating the web material as claimed. Accordingly, it is respectfully requested that the rejection with respect to claim 23 be reversed.

CLAIM 24

While it may be true that Giacometti discloses composite materials consisting of two or more membranes of carded fibers or composites consisting of fiber membranes stuck to plastic film, Giacometti, Schulz et al. and Cruise et al. do not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward preheating a web material comprising at least a plastic film as featured in the present invention. Giacometti,

Schulz et al. and Cruise et al. fail to recognize any problems associated with perforating web material and do not direct a person of ordinary skill in the art toward the advantages associated with preheating the web material prior to contacting a pair of rollers as claimed. The references as a whole do not provide any suggestion of using the teachings of Schulz et al. and Cruise et al. to modify the device of Giacometti. Instead of being concerned with perforating a web material as featured in the present invention and Giacometti, Schulz et al. and Cruise et al. are directed toward bonding preheated web material. The characteristics and properties taken into consideration in bonding web material are very different from the characteristics and properties of the web material when perforating the web material. As such, the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 24 be reversed.

Conclusion

The prior art does not teach and does not suggest the combination of features claimed. The prior art directs the person of ordinary skill in the art toward structures which are dissimilar to the claimed structure. Each of the references teach in a direction away from the combination claimed. The references do not render the claimed subject matter obvious. Accordingly, it is requested that the rejection be reversed and that the claims be indicated to patentably define over the prior art.

ISSUE: Whether claims 2, 4 and 38 are rejectable under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Majors et al. (US 5,704,101).

CLAIM 2

The final rejection takes the position that Giacometti teaches that it would be obvious to heat at least one roller as featured in claim 2. While it may be true that Giacometti discloses heating one or more cylinders in a perforating process of the web material, the references as a whole fail to teach and fail to suggest preheating a web material prior to contact with a pair of rollers wherein the preheated web material is heated by at least one of the rollers as claimed. Schulz et al. and Cruise et al. direct a person of ordinary skill in the art toward preheating a web material in bonding operations. These are completely different processes that require very different characteristics and properties of the web material be taken into consideration when compared with perforation of a web material as featured in the present invention. A person of ordinary skill in the art would not be directed toward the teachings of Schulz et al. and Cruise et al. since the teachings of Schulz et al. and Cruise et al. are in direct conflict with the teachings of Giacometti. Giacometti and the claimed combination provide that the rollers rotate at different speeds. This is inconsistent with the teachings of Schulz et al. and Cruise et al. since Schulz et al. and Cruise et al. disclose that it is essential that the rollers rotate at a uniform speed (see abstract of Schulz et al. and Column 3, lines 45-50 of Cruise et al.). As such, Schulz et al. and Cruise et al. do not provide any teaching or suggestion that would direct

a person of ordinary skill in the art toward preheating a web material prior to the web material contacting a pair of rollers as claimed.

The final rejection takes the position that Majors et al. discloses that it would be obvious to provide protuberances having a height of between 0.2 mm. and 3 mm. Although Majors et al. may disclose raised areas of a patterned roll that range between about 0.25 and 1.1 millimeters, Majors et al. does not provide any teaching or suggestion for preheating a web material prior to the web contacting a pair of rollers wherein one of the roller has protuberances with a height between 0.2 mm. and 3 mm. As previously discussed above, Schulz et al. and Cruise et al. do not provide any teaching or suggestion for preheating a web material prior to perforating the web material as claimed. Majors et al. also fails to provide any teaching or suggestion for preheating a web material prior to the web material being contacted by a pair of rollers as featured in the present invention. Majors et al. merely discloses a patterned roll 22 and an anvil roll 24 that are used to crepe and aperture a fibrous nonwoven. However, Majors et al. does not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward the advantages associated with preheating a web material prior to contact with a pair of rollers as claimed. As such, the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 2 be reversed.

CLAIM 4

The final rejection takes the position that Majors et al. discloses that it would be

obvious to provide a first roller with protuberances with each of the protuberances has a height between 0.5 mm. and 1.2 mm. as claimed. A person of ordinary skill in the art would not be directed toward the teachings of Majors et al. in view of the disclosure of Giacometti. Giacometti discloses that it is essential that the studded cylinder rotates at a peripheral speed that is greater than the peripheral speed of the smooth cylinder. This is in conflict with the teachings of Majors et al. Majors et al. discloses that it is essential that the anvil roll (smooth cylinder) 24 has a peripheral speed that is greater than a peripheral speed of the patterned roll (studded cylinder) 22. Majors et al. points out that the anvil roll 24 having a greater speed than the patterned roll 22 differentiates the process of Majors et al. from prior apparatuses and processes. A person of ordinary skill in the art would not be directed toward the teachings of Majors et al. since the teachings of Majors et al. are in direct conflict with the disclosure of Giacometti. As such, the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 4 be reversed.

CLAIM 38

The references as a whole fail to provide any teaching or any suggestion for preheating a web material prior to contacting a first roller and a second roller wherein the rollers rotate at different speeds and the first roller has protuberances having a height between 0.2 and 3 mm. or between 0.5 mm. and 1.2 mm. as claimed. The references as a whole do not recognize the advantages associated with preheating a web material prior to perforation of the web material

as featured in the present invention. Although Schulz et al. and Cruise et al. disclose preheating web material, the processes disclosed in Schulz et al. and Cruise et al. are very different from the process of perforating a web material. Neither Giacometti, Schulz et al., Cruise et al. and Majors et al. provide any teaching or suggestion that would direct a person of ordinary skill in the art toward the problem of increasing the production rate of the web material while maintaining sufficient stay time of the web material so that the web material can be properly perforated. Appellant's invention has solved this problem by preheating the web material prior to perforation of the material. Preheating the web material prior to perforation of the web material advantageously allows more time to obtain perforation of the web material. Further, the preheating of the web material advantageously reduces the bending stresses induced on the protuberances of the first roller so that the height of the protuberances can be increased. The prior art as a whole does not teach or suggest such features and such increased productivity advantages.

The final rejection relies on the teachings of Schulz et al. and Cruise et al. to suggest that it would be obvious to preheat a web material prior to the web material contacting a pair of rollers as claimed. However, a person of ordinary skill in the art would not be directed toward the teachings of Schulz et al. and Cruise et al. Schulz et al. and Cruise et al. disclose preheating a web material in processes that are very different from a process involving perforation of a web material as featured in Giacometti and in the present invention. In Schulz et al. and Cruise et al., different layers of web material or fabric are bonded together. This involves very different characteristics of the web material or fabric when compared with

perforating the web material as featured in Giacometti and the present invention. With respect to the present invention and Giacometti, the stress exerted on a web material is much greater when the web material is perforated. Compared with perforation of a web material of the present invention, the forces exerted on the web material or fabric of Schulz et al. and Cruise et al. is much less. Therefore a person of ordinary skill in the art would not be directed toward the teachings of Schulz et al. and Cruise et al. since the considerations taken into account when perforating a web material are much different than when a web material is bonded with another web material. Further, a person of ordinary skill in the art would not be directed toward the teachings of Schulz et al. and Cruise et al. since the bonding of web material as featured in Schulz et al. and Cruise et al. requires that the peripheral speed of the rollers be the same since superficial imperfections occur when the speed of the rollers is different. The abstract of Schulz et al. clearly discloses that it is essential that the rollers rotate at a uniform speed. This is in direct conflict with the present invention and the teachings of Giacometti, which discloses that it is essential that the rollers rotate at different speeds.

Even assuming a person of ordinary skill in the art would be directed toward the teachings of Schulz et al. and Cruise et al., Schulz et al. and Cruise et al. provide no teaching and no suggestion for preheating a web material prior to the web material contacting a pair of rollers as claimed. Schulz et al. and Cruise et al. merely disclose preheating a web material or layers of fabric prior to bonding the layers together. The preheating of the material in Schulz et al. and Cruise et al. serves a much different purpose than the preheating of the web material of the present invention. The preheating of the material in Schulz et al. and Cruise et al.

merely allows the layers to adhere to one another. This has nothing to do with increasing the stay time between two rollers so that a web material can be properly perforated as featured in the present invention. As such, the references as a whole do not provide any suggestion of using the teachings of Schulz et al. and Cruise et al. to modify the device of Giacometti since Schulz et al. and Cruise et al. do not provide any teaching or suggestion for preheating a web material prior to the web material being perforated as featured in the present invention.

Majors et al. et al. fails to provide any teaching or suggestion for preheating a web material prior to the web material contacting a first roller and a second roller as claimed. Majors et al. merely discloses an apparatus for creping and aperturing films and fibrous nonwovens that includes a patterned roll 22 and an anvil roll 24. However, Majors et al. is completely void of any teaching or suggestion for preheating a web material prior to the web material contacting the patterned roll 22 and the anvil roll 24 as claimed. In fact, a person of ordinary skill in the art would not be directed toward the teachings of Majors et al. in view of the teachings of Giacometti. Giacometti discloses that it is essential that the studded cylinder rotates at a peripheral speed that is greater than the peripheral speed of the smooth cylinder. This is inconsistent with the teachings of Majors et al. Majors et al. discloses that it is essential that the anvil roll (smooth cylinder) 24 has a peripheral speed that is greater than a peripheral speed of the patterned roll (studded cylinder) 22. As such, a person of ordinary skill in the art would not be directed toward the teachings of Majors et al. since the teachings of Majors et al. are in direct conflict with the disclosure of Giacometti. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person

of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 38 be reversed.

Conclusion

The prior art does not teach and does not suggest the combination of features claimed. The prior art directs the person of ordinary skill in the art toward structures which are dissimilar to the claimed structure. Each of the references teach in a direction away from the combination claimed. The references do not render the claimed subject matter obvious. Accordingly, it is requested that the rejection be reversed and that the claims be indicated to patentably define over the prior art.

ISSUE: Whether claims 6 and 10-14 are rejectable under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Dettmer et al. (WO 99/25911 referencing US 6,395,211 as an English-language equivalent).

CLAIM 6

The final rejection takes the position that Dettmer et al. discloses a web material that comprises at least a web of fibers wherein the web of fibers is bonded to form a nonwoven fabric as featured in claim 6. While it may be true that Dettmer et al. discloses a pre-bondeed web 20 of a nonwoven textile V made of thermoplastic fibers that is introduced to a nip

defined by an embossing roller and a counter-roller, Giacometti, Schulz et al. and Cruise et al. do not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward preheating a nonwoven fabric prior to the nonwoven fabric contacting a pair of rollers as featured in the present invention. Giacometti fails to recognize any problems associated with perforating web material and does not direct a person of ordinary skill in the art toward the advantages associated with preheating the web material prior to contacting a pair of rollers as claimed. The references as a whole do not provide any suggestion of using the teachings of Schulz et al., Cruise et al. and Dettmer et al. to modify the device of Giacometti. Instead of being concerned with perforating a web material as featured in the present invention and in Giacometti, Schulz et al. and Cruise et al. are directed toward bonding preheated web material. The characteristics and properties taken into consideration in bonding web material are very different from the characteristics and properties of the web material that are taken into consideration when perforating the web material. As such, the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 6 be reversed.

CLAIM 10

While it may be true that Giacometti discloses that the speed of advance of a membrane and/or film material is less than a peripheral speed of a studded cylinder, the references as a whole do not provide any teaching or suggestion for feeding a preheated web material into a nip with an input speed equal to or lower than a peripheral speed of a first roller as claimed.

The prior art as a whole fails to provide any suggestion of using the teachings of Schulz et al., Cruise et al. and Dettmer et al. to modify the device of Giacometti. Schulz et al. and Cruise et al. merely disclose bonding web material or layers of fabric together. This does not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward preheating a web material prior to contact with a pair of rollers for perforating the preheated web material as claimed. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 10 be reversed.

CLAIM 11

While it may be true that Giacometti discloses that a peripheral speed of a smooth cylinder is less than a peripheral speed of a studded cylinder, the references as a whole do not provide any teaching or suggestion for a pair of rollers that receive a preheated web material as claimed. The prior art as a whole fails to provide any suggestion of using the teachings of Schulz et al., Cruise et al. and Dettmer et al. to modify the device of Giacometti. Schulz et al. and Cruise et al. merely disclose bonding web material or layers of fabric together. This does not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward preheating a web material prior to contact with a pair of rollers for perforating the preheated web material as claimed. Further, Dettmer et al. merely discloses heating a roller, but Dettmer et al. does not provide any teaching or suggestion for preheating a web material

prior to contact with the rollers as claimed. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 11 be reversed.

CLAIM 12

The prior art as a whole fails to teach and fails to suggest the combination of a feed speed of a nonwoven fabric into a nip that is between 90% and 100% of a peripheral speed of a first roller with protuberances for perforating a preheated web material as claimed in claim 12. The final rejection takes the position that Column 6, lines 20-23 of Giacometti disclose a relationship between the feed speed of the nonwoven and the speed of a first roller as claimed. However, Column 6, lines 20-23 of Giacometti merely disclose that the lower cylinder (smooth cylinder) 5 turns at a peripheral speed equal to the speed of advance of the web N. This does not provide any teaching or suggestion as to the relationship between the feed of the web N and the cylinder 7 with projections as claimed.

The final rejection also takes the position that Column 2, lines 52-64 of Giacometti disclose that the feed speed of the web can be between 90% and 100% of the speed of the first roller as claimed. However, Column 2, lines 52-64 of Giacometti only disclose that the slipping between the surfaces of the rotating cylinder can be varied. This only directs a person of ordinary skill in the art toward the varying of speeds of the cylinders 5 and 7, but Column 2, lines 52-64 of Giacometti do provide any teaching or suggestion that would direct a person

of ordinary skill in the art toward a particular relationship between the feed speed of the web N and the speed of cylinder 7 as claimed. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 12 be reversed.

CLAIM 13

While it may be true that Giacometti discloses that a lower cylinder 5 turns at a peripheral speed equal to the speed of advance of a web N, the references as a whole do not provide any teaching or suggestion for a pair of rollers defining a nip wherein a preheated web material is passed through the nip as claimed. The prior art as a whole fails to provide any suggestion of using the teachings of Schulz et al., Cruise et al. and Dettmer et al. to modify the device of Giacometti. Schulz et al. and Cruise et al. merely disclose bonding web material or layers of fabric together. This does not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward preheating a web material prior to contact with a pair of rollers for perforating the preheated web material as claimed. Further, Dettmer et al. merely discloses heating a roller, but Dettmer et al. does not provide any teaching or suggestion for preheating a web material prior to contact with the rollers as claimed. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim

13 be reversed.

CLAIM 14

The prior art as a whole fails to teach and fails to suggest a second roller that has a peripheral speed that is between 50% and 100% of a peripheral speed of a first roller as featured in claim 14. Giacometti merely discloses that the slipping between the surfaces of the rotating cylinders 5 and 7 may vary between 10% and 50% and preferably between 15% and 25% (see Column 2, lines 52-64). However, Giacometti is completely void of any teaching or suggestion for a speed of one roller being between 50% and 100% of the speed of another roller as claimed. Appellant has discovered that the particular roller speed relationship as featured in claim 14 advantageously ensures adequate stay time of the web material between the rollers so that the entire web material is properly perforated. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 14 be reversed.

Conclusion

The prior art does not teach and does not suggest the combination of features claimed. The prior art directs the person of ordinary skill in the art toward structures which are dissimilar to the claimed structure. Each of the references teach in a direction away from the combination claimed. The references do not render the claimed subject matter obvious.

Accordingly, it is requested that the rejection be reversed and that the claims be indicated to patentably define over the prior art.

ISSUE: Whether claims 7-9, 20-22, 35 and 36 are rejectable under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Dettmer et al., and further in view of Pike et al. (US 5,382,400).

CLAIM 7

The final rejection relies on Pike et al. to suggest it would be obvious to provide a web that is produced and bonded in series upstream of a nip defined by two rollers as featured in claim 7. However, the references as a whole provide no suggestion of using the teachings of Pike et al. to modify the device of Giacometti. Although Pike et al. discloses a process for making nonwoven fabric, Pike et al. does not provide any teaching or suggestion that the fabric is subjected to further processing, such as a perforation process as featured in Giacometti. There is no teaching or suggestion in the references for replacing the unwinder of Giacometti with the apparatus for making a nonwoven fabric as featured in Pike et al. Pike et al. does not teach or suggest that the nonwoven fabric is subjected to perforation or any other further processing after the nonwoven fabric is created. As such, there is no teaching or suggestion in the references to replace the unwinder of Giacometti with the apparatus for creating a nonwoven fabric as featured in Pike et al. Accordingly, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill

in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 7 be reversed.

CLAIM 8

The final rejection relies on Pike et al. to suggest it would be obvious to preheat a web material that includes feeding a web of unbonded fibers through at least one heating and bonding station to bond fibers and form a nonwoven fabric wherein the preheated nonwoven fabric is fed into nip for perforation as featured in claim 8. However, the references as a whole provide no suggestion of using the teachings of Pike et al. to modify the device of Giacometti. Although Pike et al. discloses a process for making nonwoven fabric, Pike et al. does not provide any teaching or suggestion for subjecting the fabric to further processing, such as a perforation process as featured in Giacometti. As such, there is no teaching or suggestion in the references to replace the unwinder of Giacometti with the apparatus for creating a nonwoven fabric as featured in Pike et al. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 8 be reversed.

CLAIM 9

Although one or more of the references may disclose that an air-flow system is known to heat and bond fibers to form a nonwoven fabric, the prior art references as a whole do not

teach or suggest using an air-flow system to heat and bond fibers to form the nonwoven fabric wherein the preheated nonwoven fabric is fed to a nip defined by a pair of rollers as claimed. The prior art references as a whole do not direct a person of ordinary skill in the art toward the advantages of preheating a nonwoven fabric prior to contacting a pair of rollers as featured in the present invention. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 9 be reversed.

CLAIM 20

The final rejection relies on Pike et al. to suggest it would be obvious to provide a web material that comprises at least a first web of unbonded fibers that are joined to a second web of unbonded fibers in a heating station wherein the web material is delivered to a nip defined by two rollers for perforation as claimed in claim 20. However, the references as a whole provide no suggestion of using the teachings of Pike et al. to modify the device of Giacometti. Although Pike et al. discloses a process for making nonwoven fabric, Pike et al. does not provide any teaching or suggestion that the fabric is subjected to perforation as featured in Giacometti. There is no teaching or suggestion in the references for replacing the unwinder of Giacometti with the apparatus for making a nonwoven fabric as featured in Pike et al. since Pike et al. does not provide any teaching or suggestion for perforating the formed nonwoven fabric. As such, there is no teaching or suggestion in the references to replace the unwinder

of Giacometti with the apparatus for creating a nonwoven fabric as featured in Pike et al. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 20 be reversed.

CLAIM 21

The prior art references as a whole do not provide any teaching or suggestion for two preheated nonwoven fabrics that are fed into a nip defined by two rollers such that the two preheated nonwoven fabrics are perforated and joined together in the nip as claimed in claim 21. The final rejection relies on the teachings of Pike et al. and Dettmer et al. to suggest two preheated nonwoven fabrics that are perforated and joined together in a nip as featured in the present invention. However, neither Pike et al. nor Dettmer et al. provide any teaching or suggestion for preheating two nonwoven fabrics as claimed. Dettmer et al. merely discloses receiving an unheated web material and perforating the web material. Dettmer et al. teaches that a roller may be supplied with energy to heat the roller, but this does not provide any teaching or suggestion for preheating a web material prior to contacting a pair of rollers as claimed. Although Schulz et al. and Cruise et al. disclose preheating a web material, the preheating is applied in a bonding operation, which provides no teaching or suggestion for preheating a web material and perforating the preheated web material as claimed. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole

does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 21 be reversed.

CLAIM 22

Although a web material comprising bicomponent fibers may be known, the prior art references as a whole do not teach or suggest preheating a web material comprising bicomponent fibers wherein the preheated web material is fed to a nip defined by a pair of rollers for perforation of the preheated web material as claimed. The prior art references as a whole do not direct a person of ordinary skill in the art toward the advantages associated with preheating a web material comprising bicomponent fibers prior to contacting a pair of rollers as featured in the present invention. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 22 be reversed.

CLAIM 35

The prior art references as a whole fail to teach and fail to suggest a first web material and a second web material that are preheated prior to contacting a first roller and a second roller wherein the preheated first web material and the preheated second web material are perforated by the first roller and the second roller to form a perforated web material as claimed

in claim 35. Giacometti merely discloses a web N that is passed between two cylinders 5, 7. There is no teaching or suggestion in Giacometti for preheating two web materials and for perforating two webs as featured in the present invention. In fact, Giacometti provides no teaching or suggestion that would direct a person of ordinary skill in the art toward the advantages associated with perforating a preheated first web material and a preheated second web material.

Schulz et al. fails to teach and fails to suggest preheating a first web material and a second web material wherein the preheated web materials are perforated via a first roller and a second roller to form a perforated web material as claimed. Schulz et al. merely discloses a single fleece web that passes initially through a thermal treatment station and is preheated by a gas stream of a given gas flow velocity and gas flow temperature. However, Schulz et al. provides no teaching and no suggestion for preheating one web material and another web material wherein both preheated web materials are perforated via a first roller and a second roller as featured in the present invention. Schulz et al. only directs a person of ordinary skill in the art toward preheating a single fleece web wherein the preheated single fleece web is provided with bonding points via a mechanical treatment station 4. This merely provides teachings and suggestions that would direct a person of ordinary skill in the art toward preheating a web material prior to providing bonding the material. Schulz et al. does not direct a person of ordinary skill in the art toward preheating the material prior to perforating the material as featured in the present invention. As such, the prior art as a whole does not teach or suggest important features of the claimed combination.

A person of ordinary skill in the art would not be directed toward the teachings of Cruise et al. Cruise et al. discloses that it is essential that the rollers rotate at the same rotational speed. This is in direct conflict with the present invention and the teachings of Giacometti, which discloses that the rollers rotate at different speeds. The different speed of the rollers of the present invention is necessary to provide excellent perforation characteristics. A perforation made with rollers that rotate at different speeds provides a stress on the web that is greater than the stress occurring with the perforation made with rollers that rotate at the same speed. A person of ordinary skill in the art would not be directed toward the teachings of Cruise et al. in view of the teachings of Giacometti since Cruise et al. does not address the problem of optimizing the quality of a web of material with high stress during perforation. It is required in Cruise et al. that the rollers rotate at a uniform speed so that imperfections are not created during bonding of the fabrics.

Even assuming a person of ordinary skill in the art would be directed toward the teachings of Cruise et al., Cruise et al. provides no teaching and no suggestion for preheating a first web material and a second web material prior to the first web material and the second web material contacting a pair of rollers for perforation of the web materials as claimed. Cruise et al. merely discloses preheating a web material or layers of fabric prior to bonding the layers together. The preheating of the material in Cruise et al. solves a much different problem than that of the present invention. The preheating of the material in Cruise et al. merely allows the layers of fabric to adhere to one another. This has nothing to do with increasing the stay time of the material between two rollers so that a web material can be properly perforated as

featured in the present invention. As such, the references as a whole do not provide any suggestion of using the teachings of Cruise et al. to modify the device of Giacometti since Cruise et al. does not provide any teaching or suggestion for preheating a web material prior to the web material being perforated as featured in the present invention.

Dettmer et al. fails to teach and fails to suggest preheating a first web material and a second web material wherein the preheated web materials are perforated via a first roller and a second roller to form a perforated web material as claimed. Dettmer et al. merely discloses a web of a nonwoven textile that is made of thermoplastic fibers that passes through an embossing roller 1 and a counter-roller 2. However, Dettmer et al. provides no teaching and no suggestion for preheating one web material and another web material wherein both preheated web materials are perforated via a first roller and a second roller as featured in the present invention. Dettmer et al. only directs a person of ordinary skill in the art toward heating a single web material with a roller as the single web of material passes through a nip defined by the embossing roller 1 and the counter-roller 2. As such, the prior art as a whole does not teach or suggest important features of the claimed combination.

Pike et al. fails to teach and fails to suggest preheating a first web material and a second web material wherein the preheated web materials are perforated via a first roller and a second roller to form a perforated web material as claimed. Pike et al. merely discloses a process for making nonwoven fabric. However, there is no teaching and no suggestion in Pike et al. for perforating a preheated first web material and a preheated second web material as featured in the present invention. Pike et al. only directs a person of ordinary skill in the art toward

forming a single web of nonwoven fabric. Pike et al. is void of any teaching or suggestion for preheating one web material and another web material wherein the preheated web materials are perforated as featured in the present invention. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 35 be reversed.

CLAIM 36

Claim 36 is directed to a method for producing a perforated web material. The method includes a first roller and a second roller that perforate a preheated nonwoven fabric wherein the two rollers are rotated at different speeds. A critical aspect of the method is that a web of unbonded fibers is fed through at least one heating and bonding station such that the fibers are bonded to form the preheated nonwoven fabric, wherein the preheated nonwoven fabric is at least partially softened via the at least one heating and bonding station. The preheating advantageously allows more time to obtain perforation of the nonwoven fabric. The preheated nonwoven fabric also does not require that a large pressure be applied by the first roller and the second roller. This advantageously reduces the stress on the nonwoven fabric as well as the stress on the first roller and the second roller, which significantly increases the service life of the rollers. The prior art as a whole does not teach or suggest such stress reducing advantages.

Giacometti fails to provide any teaching or suggestion for forming a preheated

nonwoven fabric with a heating and bonding station prior to perforation of the fabric as claimed. Giacometti merely discloses heating one or more rollers at the same time of the feeding of the web material in the nip defined between the two rollers (see Column 2, lines 43-47). This disadvantageously requires that the web material be heated while in contact with the two rollers. This does not allow the web material more time to be perforated as featured in the present invention. Giacometti fails to appreciate the advantages of preheating the web material prior to perforation as claimed since Giacometti only discloses heating one or more rollers while the web material is feed to the rollers. This is a completely different approach than that of the present invention. Compared with Giacometti, the preheated nonwoven fabric of the present invention is formed by passing unbonded fibers through a heating and bonding station prior to engaging the first roller and the second roller. This advantageously subjects the nonwoven fabric to less stress since lower pressures can be applied as a result of the web material being at least partially melted or softened prior to being pressed by the two rollers. In contrast to the present invention, Giacometti does not provide any teaching or suggestion that would lead one of ordinary skill in the art toward forming a preheated nonwoven fabric prior to contact with the two rollers. As such, the prior art as a whole takes a completely different approach and fails to establish a prima facie case of obviousness.

Cruise et al. and Schulz et al. do not provide any teaching or suggestion for forming a preheated nonwoven fabric prior to feeding the nonwoven fabric to a first roller and a second roller wherein the two rollers rotate at different speeds as claimed. A person of ordinary skill in the art would not be directed to the teachings of Cruise and Schulz et al. in view of the

teachings of Giacometti. Instead of being concerned with perforating web material as disclosed in Giacometti, Cruise et al. and Schulz et al. deal with a completely different problem of bonding material together. Cruise et al. and Schulz et al. fail to provide any teaching or suggestion that would direct a person of ordinary skill in the art toward the advantages of forming a preheated nonwoven fabric prior to contact with two rollers that perforate the web material as claimed. The references as a whole fail to provide any suggestion of using the teachings of Schulz et al. and Cruise et al. to separate the heating station from a bonding station and combine it with the device of Giacometti since the references do not direct a person of ordinary skill in the art toward the benefits of forming a preheated nonwoven fabric by passing unbonded fibers through a heating and bonding station and perforating the preheated nonwoven fabric with a pair of rollers as claimed.

Dettmer et al. fails to teach and fails to suggest forming a preheated nonwoven fabric by passing unbonded fibers through a heating and bonding station wherein the preheated nonwoven fabric is passed through a nip defined by two rollers for perforating the preheated nonwoven fabric as claimed. Dettmer et al. merely discloses a web of a nonwoven textile that is made of thermoplastic fibers that passes through an embossing roller 1 and a counter-roller 2. However, Dettmer et al. provides no teaching and no suggestion for forming a preheated nonwoven fabric and perforating the preheated nonwoven fabric as featured in the present invention. Dettmer et al. only directs a person of ordinary skill in the art toward heating a web material with a roller as the single web of material passes through a nip defined by the embossing roller 1 and the counter-roller 2. This does not provide any teaching or suggestion

that would direct a person of ordinary skill in the art toward the advantages associated with perforating a preheated nonwoven fabric as claimed. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not teach or suggest important features of the claimed combination.

Pike et al. fails to teach and fails to suggest forming a preheated nonwoven fabric by passing unbonded fibers through a heating and bonding station prior to the preheated nonwoven fabric contacting a pair of rollers as claimed. According to the present invention, the preheated nonwoven fabric is passed through a nip defined by a first roller and a second roller. Pike et al. merely discloses a process for making a nonwoven fabric. However, there is no teaching and no suggestion in Pike et al. for subjecting the nonwoven fabric to a perforation process as featured in the present invention. Pike et al. only directs a person of ordinary skill in the art toward forming a single web of nonwoven fabric, but Pike et al. is void of any teaching or suggestion for preheating the web and perforating the web as featured in the present invention. As such, the rejection does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination. Accordingly, it is respectfully requested that the rejection with respect to claim 36 be reversed.

Conclusion

The prior art does not teach and does not suggest the combination of features claimed. The prior art directs the person of ordinary skill in the art toward structures which are

dissimilar to the claimed structure. Each of the references teach in a direction away from the combination claimed. The references do not render the claimed subject matter obvious. Accordingly, it is requested that the rejection be reversed and that the claims be indicated to patentably define over the prior art.

ISSUE: Whether claim 37 is rejectable under 35 U.S.C. 103(a) as being unpatentable over Giacometti in view of either one of Schulz et al. or Cruise et al., and further in view of Dettmer et al. and Pike et al., and further in view of Majors et al.

The final rejection takes the position that Majors et al. discloses that it would be obvious to provide a first roller with protuberances with each of the protuberances having a height between 0.2 and 3 mm. or a height between 0.5 and 1.2 mm. as claimed. A person of ordinary skill in the art would not be directed toward the teachings of Majors et al. in view of the disclosure of Giacometti. Giacometti discloses that it is essential that the studded cylinder rotates at a peripheral speed that is greater than the peripheral speed of the smooth cylinder. This is inconsistent with the teachings of Majors et al. Majors et al. discloses that it is essential that the anvil roll (smooth cylinder) 24 has a peripheral speed that is greater than a peripheral speed of the patterned roll (studded cylinder) 22, which differentiates the process of Majors et al. from prior apparatuses and processes. As such, a person of ordinary skill in the art would not be directed toward the teachings of Majors et al. since the teachings of Majors et al. are in direct conflict with the disclosure of Giacometti. As such, the prior art as a whole does not direct a person of ordinary skill in the art toward essential features of the claimed combination.

Accordingly, it is respectfully requested that the rejection with respect to claim 37 be reversed.

Conclusion

The prior art does not teach and does not suggest the combination of features claimed. The prior art directs the person of ordinary skill in the art toward structures which are dissimilar to the claimed structure. Each of the references teach in a direction away from the combination claimed. The references do not render the claimed subject matter obvious. Accordingly, it is requested that the rejection be reversed and that the claims be indicated to patentably define over the prior art.

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SHOULD ANY OTHER FEE BE REQUIRED, THE PATENT AND TRADEMARK OFFICE IS HEREBY REQUESTED TO CHARGE SUCH FEE TO OUR DEPOSIT ACCOUNT 13-0410.

(8) CLAIMS APPENDIX

1. A method to produce a perforated web material, the method comprising the steps of:

providing a first roller and a second roller, said first roller and said second roller defining a nip;

preheating a web material to form a preheated web material, said web material being preheated prior to contacting said first roller and said second roller, said preheated web material having a preheated temperature, said preheated temperature being greater than an ambient temperature;

feeding said preheated web material to an entrance of said nip without contacting said second roller;

feeding said preheated web material through said nip;

rotating said first roller and said second roller in opposite directions and pressing said first roller against said second roller during said feeding of said preheated web material, said first roller being provided with protuberances for perforation, said protuberances contacting a surface of said second roller without penetrating said surface of said second roller, wherein said first roller and said second roller rotate with a different peripheral speed to each other.

2. A method as claimed in claim 1, wherein at least one of said first roller and second roller is heated, each of said protuberances having a height between 0.2 and 3 mm.

4. A method as claimed in claim 1, wherein said first roller rotates at a higher peripheral speed than said second roller, each of said protuberances having a height between 0.5 and 1.2 mm.

5. A method as claimed in claim 1, wherein said web material is a nonwoven fabric.

6. A method as claimed in claim 5, wherein said web material comprises at least a web of fibers, said web of fibers being bonded to form a nonwoven fabric, said preheating including preheating said nonwoven fabric, said nonwoven fabric being fed into said nip.

7. A method as claimed in claim 6, wherein said web is produced and bonded in series upstream of said nip.

8. A method as claimed in claim 6, wherein said web material includes at least a web of unbonded fibers, said preheating of said web material comprising feeding said web of unbonded fibers through at least one heating and bonding station to bond said fibers and form a nonwoven fabric, said nonwoven fabric being fed into said nip.

9. A method as claimed in claim 8, wherein heating and bonding are performed using an air-through system.

10. A method as claimed in claim 6, wherein the nonwoven fabric is fed into said nip with an input speed equal to or lower than the peripheral speed of the first roller.

11. A method as claimed in claim 12, wherein said second roller is rotated at a peripheral speed lower than or equal to the peripheral speed of said first roller.

12. A method as claimed in claim 10, wherein the feed speed of the nonwoven fabric into said nip is between 90% and 100% of the peripheral speed of the first roller.

13. A method as claimed in claim 12, wherein the feed speed of the nonwoven fabric into said nip is between 90% and 110% of the peripheral speed of the second roller.

14. A method as claimed in claim 12, wherein the peripheral speed of the second roller is between 50% and 100% of the peripheral speed of the first roller.

19. A method as claimed in claim 5, wherein two or more webs of fibers are coupled and joined together.

20. A method as claimed in claim 19, wherein said web material comprises at least a first web of unbonded fibers and a second web of unbonded fibers, said first web of unbonded fibers and said second web of unbonded fibers being joined in a heating station.

21. A method as claimed in claim 19, wherein said web material comprises at least a first web of unbonded fibers and a second web of unbonded fibers, said first web of unbonded fibers and said second web of unbonded being fed to one or more heating and bonding stations for preheating and separately bonding the fibers of the first and of the second web to form two nonwoven fabrics, said two preheated nonwoven fabrics being fed into said nip such that said two preheated nonwoven fabrics are perforated and joined together in said nip.

22. A method as claimed in claim 5, wherein said web material comprises bicomponent fibres.

23. A method as claimed in claim 5, wherein a plastic film is combined with said nonwoven fabric or with a web of unconsolidated fibres.

24. A method as claimed in claim 1, wherein said web material comprises at least a plastic film.

35. A method to produce a perforated web material, the method comprising the steps of:

providing a first web material and a second web material;

providing a first roller and a second roller, said first roller and said second roller

defining a nip;

rotating said first roller at a first speed;

rotating said second roller at a second speed, said first speed being different from said second speed;

preheating said first web material and said second web material to form a preheated first web material and a preheated second web material, wherein said first preheated web material has an at least partially melted first web material portion and said second preheated web material has an at least partially melted second web material portion, said first web material and said second web material being preheated prior to contacting said first roller and said second roller, said preheated first web material and said second web material having a preheated temperature, said preheated temperature being greater than an ambient temperature;

feeding said preheated web material to a position adjacent to said nip without said preheated web material contacting said second roller;

feeding said preheated first web material and said preheated second web material through said nip with said first roller rotating at said first speed and said second roller rotating at said second speed;

pressing said first roller against said second roller during said feeding of said preheated first web material and said preheated second web material, said first roller rotating in a first roller direction, said second roller rotating in a direction opposite said first roller direction, said first roller comprising a plurality of projections;

heating at least one of said first roller and second roller; and

perforating said preheated first web material and said second web material via said first roller and second roller to form a perforated web material, wherein said projections do not penetrate said second roller during said step of perforating said preheated first web material.

36. A method to produce a perforated web material, the method comprising the steps of:

providing at least one heating and bonding station;

producing at least a web of unbonded fibers;

feeding said web of unbonded fibers through said at least one heating and bonding station such that said fibers are bonded to form a preheated nonwoven fabric, wherein said preheated nonwoven fabric is at least partially softened via said at least one heating and bonding station, said preheated nonwoven fabric having a preheated temperature, said preheated temperature being greater than an ambient temperature;

providing a first roller and a second roller, said first roller and said second roller defining a nip, said first roller and said second roller being located downstream of said at least one heating and bonding station with respect to a travel direction of said preheated nonwoven fabric;

rotating said first roller at a first roller speed;

rotating said second roller at a second roller speed, said first roller speed not being equal to said second roller speed;

delivering said preheated nonwoven fabric to an area opposite said nip without said

preheated nonwoven fabric contacting said second roller;

feeding said preheated nonwoven fabric into said nip with said first roller rotating at said first roller speed and with said second roller rotating at said second roller speed, wherein said preheated nonwoven fabric is preheated prior to contacting said first roller and said second roller, said first roller and said second roller being located at a spaced location from said heating and bonding station; and

pressing said first roller against said second roller during feeding of said nonwoven fabric to form a perforated nonwoven fabric, said first roller rotating in a first roller direction, said second roller rotating in a direction opposite said first roller direction, said first roller comprising one or more projections, wherein said one or more projections do not penetrate a surface of said second roller during pressing said first roller against said second roller.

37. A method as claimed in claim 35, wherein said first roller and said second roller apply a pressure in a range of 40 and 220 kg/cm, each of said protuberances having one of a height between 0.2 and 3 mm. and a height between 0.5 and 1.2 mm.

38. A method to produce a perforated web material, the method comprising the steps of:

providing a first roller and a second roller, said first roller and said second roller defining a nip;

preheating a web material to form a preheated web material, said web material being

preheated prior to contacting said first roller and said second roller, said preheated web material having a preheated temperature, said preheated temperature being greater than an ambient temperature;

feeding said preheated web material through said nip;

rotating said first roller and said second roller in opposite directions and pressing said first roller against said second roller during said feeding of said preheated web material, said first roller being provided with protuberances for perforation, said protuberances contacting a surface of said second roller without penetrating said surface of said second roller, said protuberances having one of a height between 0.2 and 3 mm. and a height between 0.5 and 1.2 mm., wherein said first roller and said second roller rotate with a different peripheral speed to each other.

(9) Evidence appendix

NONE

(10) Related proceedings appendix

NONE